CLAIMS

1. Peptide inhibitor of the translation of proteins, characterised in that its length is up to 250 amino acids and in that it comprises an amino acid sequence possessing at least 85% identity with the amino acid sequence SEQ ID N° 1.

2. Peptide according to Claim 1, characterised in that its length is up to 50 amino acids.

3. Peptide according to Claim 1, characterised in that its length is up to 30 amino acids, preferably up to 28 amino acids.

4. Peptide according to one of the Claims 1 to 3, characterised in that it comprises an amino acid sequence possessing at least 89% identity with the amino acid sequence SEQ ID N° 1.

5. Peptide according to one of the Claims 1 to 4, characterised in that it comprises the sequence SEQ ID N° 1.

6. Peptide according to one of the Claims 1 to 4, characterised in that it comprises the sequence SEQ ID N° 2.

7. Fusion polypeptide specifically inhibiting the translation of a target polynucleotide of interest, characterised in that said polypeptide comprises a peptide according to one of the Claims 1 to 6, said peptide being fused with an RNA binding protein.

8. Fusion polypeptide according to Claim 7, characterised in that the RNA binding protein is selected from MS2CP, N, IRP and U1A.

9. Nucleic acid comprising a polynucleotide coding for a peptide according to one of the Claims 1 to 6.

10. Nucleic acid according to Claim 9, characterised in that it comprises

a regulatory polynucleotide under the control of which is placed the polynucleotide coding for the peptide.

11. Nucleic acid comprising a polynucleotide coding for a fusion polypeptide according to one of the Claims 7 and 8.

12. Nucleic acid according to Claim 11, characterised in that it comprises a regulatory polynucleotide under the control of which is placed the polynucleotide coding for the fusion polypeptide.

13. Nucleic acid according to Claim 12, characterised in that the regulatory polynucleotide is an inducible regulatory polynucleotide.

14. Control system of the translation of a target polynucleotide of interest comprising a fusion polypeptide according to one of the Claims 7 or 8, or a nucleic acid according to one of the Claims 11 to 13.

15. Control system of the translation of a target polynucleotide of interest comprising:

(a) a first nucleic acid consisting of a nucleic acid according to one of the Claims 11 to 13;

(b) a second nucleic acid comprising:

(i) at least one copy of a target nucleotide sequence of the RNA binding protein contained in the fusion polypeptide encoded in the first nucleic acid such as defined in (a);

(ii) the polynucleotide of interest.

16. Control system of the translation of a target polynucleotide of interest comprising:

(a) a fusion polypeptide according to one of the Claims 7 or 8;

(b) a nucleic acid comprising:

(i) at least one copy of a target nucleotide sequence of the RNA binding protein contained in the fusion polypeptide such as defined in (a);

(ii) the polynucleotide of interest.

17. Control system according to one of the Claims 15 or 16, characterised in that the second nucleic acid comprises a regulatory polynucleotide under the control of which is placed the polynucleotide of interest.

18. Nucleic acid according to one of the Claims 9 and 10, characterised in that it is inserted into a recombinant cloning or expression vector.

19. Recombinant cloning or expression vector comprising a nucleic acid according to one of the Claims 9 and 10.

20. Nucleic acid according to one of the Claims 11 to 13, characterised in that it is inserted in a recombinant cloning or expression vector.

21. Recombinant cloning or expression vector comprising a nucleic acid according to one of the Claims 11 to 13.

22. Vector according to Claim 21, characterised in that it is the vector pMS2CP-PEP58X deposited with the Collection Nationale de Cultures de Microorganismes on 8th July 2003 under the access number I-3067.

23. Control system according to one of the Claims 15 to 17,, characterised in that the nucleic acid(s) which is/are included in the latter is/are inserted in a recombinant expression vector.

24. Control system according to one of the Claims 15 to 17, characterised in that the nucleic acid (b) is inserted into the genome of a prokaryotic or eukaryotic host cell.

25. Prokaryotic or eukaryotic host cell comprising a control system according to one of the Claims 15 to 17, 23 and 24.

26. Prokaryotic or eukaryotic host cell comprising a nucleic acid according to one of the Claims 11 to 13 or a recombinant vector according to Claim 21.

27. Process for the *in vitro* control of the translation of a target polynucleotide of interest, characterised in that it comprises the following steps:

a) into a prokaryotic or eukaryotic host cell is introduced a nucleic acid comprising:

(j) at least one copy of a target nucleotide sequence of an RNA binding protein;

(ii) the polynucleotide of interest; and

(iii) a regulatory polynucleotide under the control of which is placed said polynucleotide of interest.

(b) the recombinant host cell obtained at the end of step a) is cultivated in a suitable culture medium, the recombinant host cell expressing the said polynucleotide of interest;

(c) when desired, the expression of the said polynucleotide of interest is inhibited by adding to the cell culture medium a fusion polypeptide according to one of the Claims 7 or 8.

28. Process for the *in vitro* control of the translation of a target polynucleotide of interest, characterised in that it comprises the following steps:

(a) into a prokaryotic or eukaryotic host cell are introduced:

(1) a nucleic acid comprising:

(i) at least one copy of a target nucleotide sequence of an RNA binding protein;

(ii) the polynucleotide of interest; and

(iii) a regulatory polynucleotide under the control of which is placed the said polynucleotide of interest.

and

(2) a nucleic acid according to Claim 13;

(b) the prokaryotic or eukaryotic host cell is cultivated in a suitable culture medium;

(c) when desired, an agent permitting the activation or repression of the expression of the polynucleotide coding for the fusion polypeptide is added to the culture medium to give a suitable final concentration.

29. Kit for the control of the translation of a polynucleotide of interest, characterised in that it comprises a fusion polypeptide according to one of the Claims 7 or 8.

30. Kit for the control of the translation of a polynucleotide of interest, characterised in that it comprises:

(a) a fusion polypeptide according to one of the Claims 7 or 8; and

(b) a recombinant vector in which is inserted a nucleic acid comprising:

(i) at least one copy of a target nucleotide sequence of the RNA binding protein contained in the fusion polypeptide such as defined in (a);

(ii) the polynucleotide of interest.

31. Kit for the control of the translation of a polynucleotide of interest, characterised in that it comprises a recombinant vector in which is inserted a nucleic acid according to one of the Claims 11 to 13.

32. Kit for the control of the translation of a polynucleotide of interest, characterised in that it comprises:

(a) a recombinant vector in which is inserted a nucleic acid according to one of the Claims 11 to 13; and

(b) a recombinant vector in which is inserted a nucleic acid comprising:

(i) at least one copy of a target nucleotide sequence of the RNA binding protein contained in the fusion polypeptide such as defined in (a)

(ii) the polynucleotide of interest.

33. Kit according to Claim 32, characterised in that the recombinant vector (a) is the vector pMS2CP-PEP58X deposited with the Collection Nationale de Cultures de Microorganismes on 8th July 2003 under the access number I-3067.

34. Use of a control system according to one of the Claims 15 to 17, 23 and 24 or a kit according to one of the Claims 29 to 33 for the control of the translation of a polynucleotide of interest.

35. Use according to Claim 34, characterised in that the polynucleotide of interest is expressed in a cell-free system.

36. Use according to Claim 34, characterised in that the polynucleotide of interest is expressed *in vitro* by cells cultivated in a bioreactor.

37. Pharmaceutical composition comprising a fusion polypeptide according to one of the Claims 7 or 8.

38. Pharmaceutical composition comprising:
(a) a fusion polypeptide according to one of the Claims 7 or 8; and
(b)a recombinant vector in which is inserted a nucleic acid comprising:
(i) at least one copy of a target nucleotide sequence of the RNA binding protein contained in the fusion polypeptide such as defined in (a);
(ii) the polynucleotide of interest.

39. Pharmaceutical composition comprising a recombinant vector in which is inserted a nucleic acid according to one of the Claims 11 to 13.

40. Pharmaceutical composition comprising:
(a) a recombinant vector in which is inserted a nucleic acid according to one of the Claims 11 to 13; and
(b)a recombinant vector in which is inserted a nucleic acid comprising:
(i) at least one copy of a target nucleotide sequence of the RNA binding protein contained in the fusion polypeptide such as defined in (a)
(ii) the polynucleotide of interest.